

AD-A123 360

12831D LANCE MISSILE NUMBER 4581 ROUND NUMBER 380-MSL 5 1/1  
NOVEMBER 1982(U) ARMY ELECTRONICS RESEARCH AND  
DEVELOPMENT COMMAND WSHR NM ATM. D C KELLER NOV 82  
ERADCOM/ASL/DR-1272 F/G 4/2

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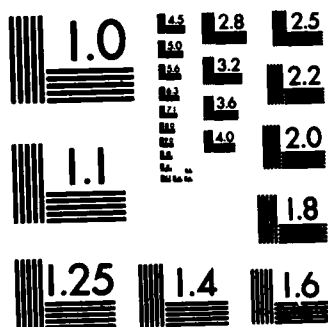
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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

AD A123360

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) Approved for public release; distribution unlimited.		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 12831D LANCE, Missile Number 4581, Round Number 380-MSL are presented in tabular form.		

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## INTRODUCTION

12831D LANCE, Missile Number 4581, Round Number 380-MSL, was launched from LC-33 White Sands Missile Range (WSMR), New Mexico, at 0830:04 MST. 05 Nov 82. The scheduled launch time was 0830 MST.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm}/\text{m}^3$ ), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

#### b. Upper Air

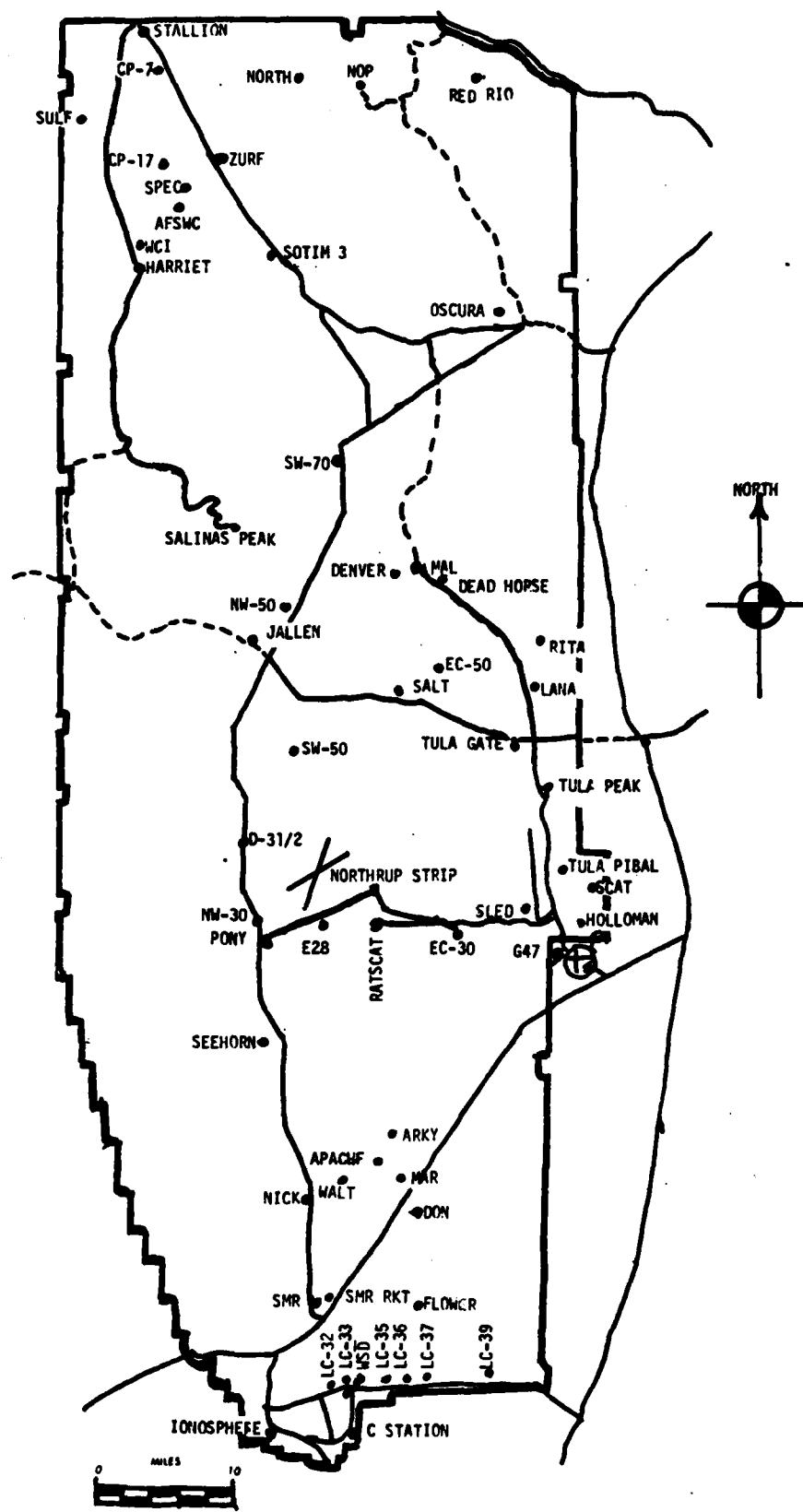
(1) Low level wind data were obtained from a pilot-balloon observation at:

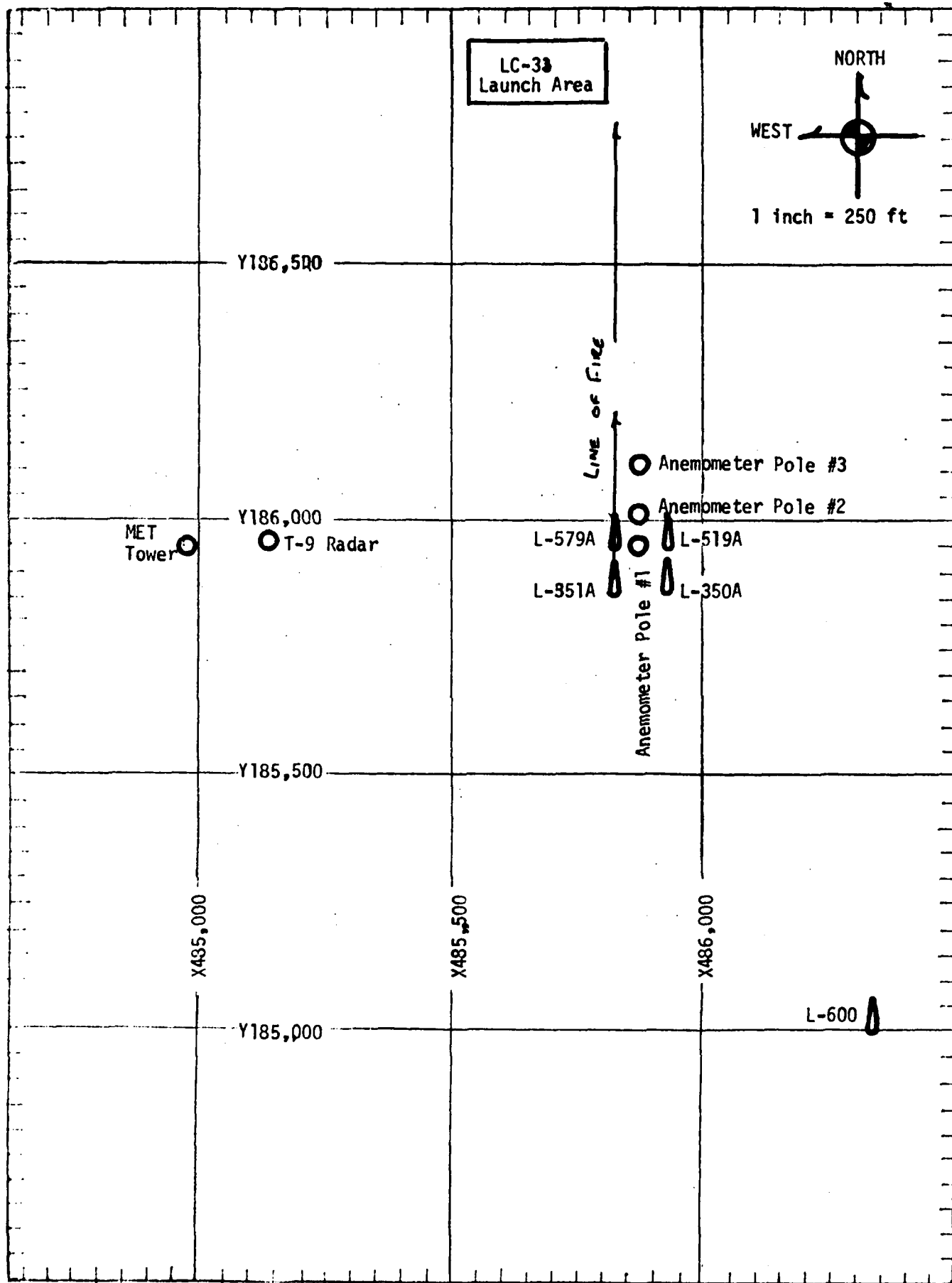
SITE AND ALTITUDE  
WSD 3km

(2) Air structure data (rawinsonde) were collected at the following Met Sites.

SITE AND TIME  
WSD 0830 MST (Launch area)  
STALLION 0930 MST (Impact area)

# WSMR METEOROLOGICAL SITES







# PROJECT SURFACE OBSERVATION

STATION LC-33 E & A									
X= 434,982.64 Y= 185,957.73 H= 3995.00									
TABLE 1									
DATE 5 NOV 82									
TIME 0830									
TIME M S I	PRESSURE mbs	TEMPERATURE OF °C	DEW POINT OF °C	RELATIVE HUMIDITY %	DENSITY gm/m <sup>3</sup>	WIND			VISIBIL- ITY
						DIRECTION degs	Tn	SPEED kts	
0830	385.3	4.5	-1.3	66		005		03	50

OBSTRUCTIONS TO VISIBILITY	CLOUDS						REMARKS
	1st LAYER		2nd LAYER		3rd LAYER		
	AMT	TYPE	AMT	TYPE	AMT	TYPE	
	0	CU	6500	1	CI	25,000	

## PSYCHROMETRIC COMPUTATION

TIME: MST	0830	
DRY BULB TEMP.	4.5	
WET BULB TEMP.	1.3	
WET BULB DEPR.	2.7	
DEW POINT	-1.3	
RELATIVE HUMID.	66	

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X435,874.29 Y136,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T -30		CALM	T -30	347	02	T -30	357	02
T -20		CALM	T -20	353	01	T -20	353	03
T -10		CALM	T -10	011	02	T -10	358	03
T 0.0		CALM	T 0.0	011	02	T 0.0	353	03
T +10		CALM	T +10	357	03	T +10	001	03

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T -30	357	01	T -30	351	01
T -20	020	02	T -20	339	02
T -10	343	03	T -10	357	02
T 0.0	003	03	T 0.0	002	03
T +10	009	02	T +10	356	02

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T -30	353	02	T -30	356	03
T -20	358	02	T -20	006	04
T -10	359	02	T -10	356	05
T 0.0	001	03	T 0.0	353	05
T +10	008	03	T +10	353	05

PILIT BAILAN MEASURED WIND DATA

TABLE 4

RELEASED FROM MSD

DATE 5 Nov 82

TIME 0839

ADDITIONAL (WIND)

483,852.29

184,982.45

3,993.75

HEIGHTS ARE METERS AGL X FEET AGL

HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS	HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS	HEIGHT AGL	DIRECTION DEGREES	SPEED KNOTS
SFC	330	02	1800	225	12			
60	MISG	MISG	1860	232	12			
120	MISG	MISG	1920	223	11			
180	350	05	1980	235	12			
240	357	04	2040	241	10			
300	193	03	2100	223	12			
360	215	02	2160	229	10			
420	198	02	2220	223	11			
480	175	04	2280	232	11			
540	168	05	2340	233	13			
600	182	03	2400	240	11			
660	172	03	2460	244	10			
720	153	03	2520	245	12			
780	176	03	2580	263	13			
840	165	04	2640	267	14			
900	194	06	2700	272	14			
960	189	09	2760	262	15			
1020	195	12	2820	270	17			
1080	197	12	2880	276	13			
1140	201	12	2940	272	13			
1200	206	12	3000	273	19			
1260	206	11						
1320	185	12						
1380	173	12						
1440	189	11						
1500	200	13						
1560	217	12						
1620	205	12						
1680	219	11						
1740	219	12						

## COMPUTER NET MESSAGES

05 Nov 82

USD 0830 MST	STALLION 0930 MST
NETCM1324064	NETCM1338067
051550122886	051650151855
00587002 27810386	00000000 28460855
01626004 27980875	01357004 28370845
02337002 28250849	02339004 28160820
03312006 28240809	03400013 28120781
04347012 28310761	04429013 28040735
05398011 28040717	05425012 27770691
06414012 27680674	06439015 27420650
07473015 27420634	07428014 27060611
08500018 27130595	08465019 27070573
09501025 26810559	09484023 27180538
10492029 26480524	10462025 26360505
11457021 26180492	11441027 25850473
12441023 25570445	12464031 25260428
13456034 24670389	13459036 24520373
14471033 23810338	14445033 23540324
15492047 23150292	
16499055 22740252	
17504061 22310217	
18505058 21730186	
19516050 21300159	
20498040 21040135	
21508033 20700115	
22472020 20440097	
23492008 20720083	
24425009 20970070	
25396010 21370060	
26379007 21440051	

STATION ALTITUDE 3989.00 FEET MSL  
 5 NOV. 62  
 ASCENSION NO. 543

SIGNIFICANT LEVEL DATA  
 3090020543  
 WHITE SANDS  
 TABLE 6

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT
	AIR DEGREES	DEWPOINT CENTIGRADE	
885.6	3989.0	4.2	-2.6
877.6	4231.8	4.8	-6.7
870.0	4441.2	7.8	-4.9
850.0	5097.2	9.1	-6.7
807.0	6507.6	8.6	-10.8
769.0	7820.6	10.4	-15.9
723.2	9490.0	7.9	-17.9
700.0	10360.4	5.2	-18.5
649.8	12351.0	1.7	-20.0
624.2	13412.5	.3	-22.5
508.2	18727.8	-9.9	-30.3
500.0	19139.9	-10.5	-32.8
461.6	21145.0	-15.0	-33.9
400.0	24639.0	-25.1	-39.3
387.4	25402.3	-26.4	-39.7
364.7	26826.8	-30.5	-36.9
339.7	28473.3	-34.9	-40.7
331.0	29067.1	-36.7	-42.1
306.9	30779.9	-39.7	-46.3
300.0	31291.4	-40.1	
288.1	32197.2	-42.1	
275.9	33150.4	-44.5	
269.9	33640.4	-45.4	
257.9	34640.2	-45.1	
250.0	35324.3	-45.3	
229.7	37177.0	-47.5	
200.0	40151.3	-53.6	
167.7	43037.7	-59.1	
150.1	46131.3	-61.3	
144.5	46895.6	-61.3	
131.1	48877.1	-63.4	
114.9	51534.6	-65.8	
103.1	53686.0	-69.6	
100.0	54286.6	-69.6	
84.5	57631.3	-65.8	
77.7	59313.3	-65.8	
70.0	61417.0	-63.6	
57.9	65313.4	-58.2	
55.1	66341.2	-59.5	
50.0	68355.4	-58.2	

STATION ALTITUDE 3989.00 FEET MSL  
5 NOV. 82 0830 HRS MST  
ASCENSION NO. 543

SIGNIFICANT LEVEL DATA  
3090020543  
WHITE SANDS  
TABLE G Cont'd

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.57033 LON DEG

PRESSURE	GEOMETRIC ALTITUDE	TEMPERATURE AIR	DEWPOINT DEGREES	REL. HUM. PERCENT
MILLIBARS	MSL FEET		CENTIGRADE	
46.1	70040.6		-59.3	
40.3	72957.4		-54.2	
30.0	79120.5		-53.9	
23.9	83995.2		-49.8	
20.0	87867.0		-48.1	
18.5	89574.0		-46.6	
15.7	93177.7		-46.9	
11.5	100100.4		-41.1	
10.0	103278.9		-36.7	
8.1	108147.8		-33.8	

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

UPPER AIR DATA  
3090020543  
WHITE SANDS  
TABLE 7

STATION ALTITUDE 3989.0 FEET NSL  
5 NOV. 52 0830 HRS MST  
ASCENSION NO. 543

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM <sup>3</sup>	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (M)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	885.6	4.2	61.0	1110.0	649.5	330.0	1.9	1.000272
4000.0	885.2	4.2	60.2	1109.4	649.5	329.6	1.9	1.000272
4500.0	860.9	7.9	39.3	1075.0	653.7	262.1	.6	1.000260
5000.0	853.1	8.9	33.2	1051.8	654.8	188.4	1.8	1.000252
5500.0	837.5	9.0	29.7	1032.6	654.8	178.7	3.5	1.000246
6000.0	822.2	8.8	26.9	1014.6	654.6	175.5	5.3	1.000241
6500.0	807.2	8.6	24.0	996.8	654.3	179.6	6.3	1.000235
7000.0	792.5	9.3	20.2	976.5	655.1	166.4	7.6	1.000229
7500.0	778.1	10.0	16.4	956.5	655.8	195.9	9.3	1.000223
8000.0	763.9	10.1	14.0	938.7	656.0	198.1	10.8	1.000217
8500.0	750.0	9.4	14.0	924.0	655.1	199.7	11.8	1.000214
9000.0	730.4	8.6	14.0	909.6	654.2	205.2	11.7	1.000210
9500.0	722.9	7.9	14.0	895.5	653.3	212.7	11.5	1.000207
10000.0	709.6	6.3	15.2	883.9	651.5	222.3	11.3	1.000204
10500.0	696.6	5.0	16.1	871.8	649.9	228.6	11.3	1.000201
11000.0	683.6	4.1	16.6	858.3	648.9	232.7	11.2	1.000198
11500.0	670.9	3.2	17.1	845.1	647.9	239.6	11.3	1.000195
12000.0	658.4	2.3	17.6	832.0	646.8	247.8	11.6	1.000192
12500.0	646.1	1.5	17.7	819.0	645.9	258.8	13.1	1.000188
13000.0	634.0	.8	16.8	805.6	645.1	267.5	15.0	1.000185
13500.0	622.1	.1	16.0	792.5	644.2	272.3	16.3	1.000182
14000.0	610.2	-.8	16.1	780.1	643.1	276.3	17.6	1.000179
14500.0	598.5	-1.8	16.2	767.9	641.9	279.6	18.3	1.000176
15000.0	587.0	-2.7	16.3	755.9	640.8	282.0	19.4	1.000173
15500.0	575.8	-3.7	16.4	744.1	639.6	282.2	21.4	1.000170
16000.0	564.8	-4.7	16.5	732.4	638.5	282.0	23.8	1.000167
16500.0	553.9	-5.6	16.6	721.0	637.3	281.2	26.8	1.000164
17000.0	543.3	-6.6	16.7	709.7	636.2	280.2	28.8	1.000161
17500.0	532.9	-7.5	16.8	698.7	635.0	278.8	29.6	1.000159
18000.0	522.7	-8.5	16.9	687.8	633.9	276.1	27.3	1.000156
18500.0	512.7	-9.5	17.0	677.1	632.7	271.8	23.5	1.000154
19000.0	502.8	-10.3	15.0	660.1	631.7	265.1	21.4	1.000151
19500.0	492.9	-11.3	14.7	655.6	630.5	257.3	20.2	1.000148
20000.0	483.6	-12.4	15.7	643.4	629.1	253.6	23.0	1.000146
20500.0	473.6	-13.6	16.7	633.4	627.8	250.9	25.6	1.000144
21000.0	464.3	-14.7	17.7	625.6	626.4	249.1	26.8	1.000141
21500.0	454.9	-16.0	18.7	616.2	624.8	247.9	27.8	1.000139
22000.0	445.7	-17.5	19.7	607.1	623.0	247.0	28.1	1.000137
22500.0	436.7	-18.9	20.7	598.2	621.2	248.0	28.7	1.000135
23000.0	427.8	-20.4	21.7	589.4	619.5	248.4	29.5	1.000133

STATION ALTITUDE 3989.00 FEET MSL  
5 NOV. 62  
ASCENSION NO. 543

UPPER AIR DATA  
3020020543  
WHITE SANDS  
TABLE 7 Cont'd

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
23500.0	419.1	-21.8	-37.4	22.7	580.8	617.7	248.2	30.6	1.000131
24000.0	410.6	-23.3	-38.2	23.7	572.3	615.9	247.4	32.0	1.000129
24500.0	402.3	-24.7	-39.1	24.7	564.0	614.1	249.2	33.4	1.000127
25000.0	394.0	-25.7	-39.5	25.9	554.6	612.9	251.9	34.9	1.000125
25500.0	385.8	-26.7	-39.4	28.8	545.2	611.7	257.4	34.9	1.000123
26000.0	377.7	-28.1	-38.0	37.9	536.9	609.9	263.1	35.1	1.000121
26500.0	369.3	-29.6	-37.2	47.0	528.7	608.1	265.5	33.8	1.000119
27000.0	362.0	-31.0	-37.3	53.2	520.6	606.4	267.7	32.7	1.000118
27500.0	354.3	-32.3	-38.5	53.8	512.3	604.7	266.5	32.6	1.000116
28000.0	346.7	-33.6	-39.6	54.4	504.2	603.0	265.2	32.8	1.000114
28500.0	339.3	-35.0	-40.8	55.1	496.2	601.3	263.9	33.6	1.000112
29000.0	332.0	-36.5	-41.9	56.8	488.6	599.4	263.7	34.0	1.000110
29500.0	324.7	-37.5	-43.1	55.0	479.9	598.1	264.1	34.4	1.000108
30000.0	317.6	-38.3	-44.3	52.6	471.2	597.0	267.5	35.4	1.000106
30500.0	310.7	-39.2	-45.6	50.3	462.6	595.9	271.1	37.0	1.000104
31000.0	303.9	-39.9	-51.3	27.9**	453.8	595.0	274.7	40.2	1.000101
31500.0	297.2	-40.6			445.2	594.1	277.0	44.1	1.000099
32000.0	290.6	-41.7			437.4	592.7	277.8	48.9	1.000097
32500.0	284.2	-42.9			429.9	591.2	278.2	50.8	1.000096
33000.0	277.9	-44.1			422.6	589.6	278.5	51.6	1.000094
33500.0	271.6	-45.1			415.0	588.3	278.7	51.0	1.000092
34000.0	265.5	-45.3			405.9	588.1	279.1	51.4	1.000090
34500.0	259.5	-45.1			396.6	588.3	279.8	53.5	1.000088
35000.0	253.7	-45.2			387.7	588.2	280.2	55.9	1.000086
35500.0	248.0	-45.5			379.5	587.8	280.7	58.5	1.000085
36000.0	242.4	-46.1			371.9	587.0	280.5	60.4	1.000083
36500.0	236.9	-46.7			364.5	586.3	280.4	62.0	1.000081
37000.0	231.6	-47.3			357.2	585.5	281.1	62.6	1.000080
37500.0	226.3	-48.2			350.4	584.4	281.8	63.0	1.000078
38000.0	221.1	-49.2			343.9	583.0	282.6	63.0	1.000077
38500.0	216.0	-50.8			337.5	581.7	283.3	62.4	1.000075
39000.0	211.0	-51.2			331.3	580.3	283.8	61.3	1.000074
39500.0	206.2	-52.3			325.1	579.0	284.5	60.7	1.000072
40000.0	201.4	-53.3			319.1	577.7	285.2	60.2	1.000071
40500.0	196.7	-54.1			312.8	576.6	284.8	60.3	1.000070
41000.0	192.1	-54.9			306.5	575.6	284.5	60.1	1.000068
41500.0	187.5	-55.6			300.3	574.6	284.3	59.0	1.000067
42000.0	183.1	-56.4			294.2	573.6	283.9	57.8	1.000066
42500.0	178.8	-57.1			288.3	572.6	283.5	56.5	1.000064
43000.0	174.5	-57.9			282.4	571.6	284.0	55.4	1.000063

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.



STATION ALTITUDE 3989.00 FEET MSL  
5 NOV. 82 0830 HRS MST  
ASCENSION 110. 543

UPPER AIR DATA  
3000020543  
WHITE SANDS  
TABLE 7 Cont'd

GEODETLIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM <sup>3</sup>	SPEED OF SOUND KNOTS	WIND DATA DIRECTION (TN) SPEED (KNOTS)	INDEX OF REFRACTION
43500.0	170.4	-58.6		276.7	570.6	284.8	1.000062
44000.0	160.4	-59.3		271.0	569.0	287.4	1.000060
44500.0	162.4	-59.7		265.1	569.1	290.0	1.000059
45000.0	158.5	-60.2		259.3	568.5	290.9	1.000058
45500.0	154.7	-60.7		253.6	567.0	291.1	1.000056
46000.0	151.0	-61.2		248.1	567.2	289.8	1.000055
46500.0	147.3	-61.3		242.3	567.0	287.7	1.000054
47000.0	143.8	-61.4		236.5	566.9	284.6	1.000053
47500.0	140.3	-61.9		231.4	566.2	282.1	1.000052
48000.0	136.9	-62.5		226.3	565.5	280.6	1.000050
48500.0	133.6	-63.0		221.4	564.8	280.6	1.000049
49000.0	130.3	-63.5		216.5	564.1	281.7	1.000048
49500.0	127.1	-64.0		211.7	563.5	283.1	1.000047
50000.0	124.0	-64.4		206.9	562.9	284.7	1.000046
50500.0	121.0	-64.9		202.3	562.2	285.5	1.000045
51000.0	118.0	-65.3		197.8	561.6	286.0	1.000044
51500.0	115.1	-65.8		193.3	561.0	285.7	1.000043
52000.0	112.2	-66.6		189.3	559.9	285.2	1.000042
52500.0	109.4	-67.5		185.4	558.7	284.5	1.000041
53000.0	106.7	-68.4		181.6	557.5	283.7	1.000040
53500.0	104.1	-69.3		177.8	556.3	281.1	1.000040
54000.0	101.5	-69.6		173.7	555.8	277.3	1.000039
54500.0	98.9	-69.4		169.1	556.1	270.2	1.000038
55000.0	96.5	-68.8		164.4	556.9	260.7	1.000037
55500.0	94.1	-68.2		159.9	557.7	255.5	1.000036
56000.0	91.7	-67.7		155.5	558.5	254.3	1.000035
56500.0	89.5	-67.1		151.2	559.2	253.8	1.000034
57000.0	87.2	-66.5		147.1	560.0	254.2	1.000033
57500.0	85.1	-65.9		143.0	560.8	258.5	1.000032
58000.0	83.0	-65.8		139.4	561.0	272.9	1.000031
58500.0	80.9	-65.8		135.9	561.0	294.7	1.000030
59000.0	78.9	-65.8		132.6	561.0	317.6	1.000030
59500.0	77.0	-65.6		129.2	561.2	330.9	1.000029
60000.0	75.1	-65.1		125.7	562.0	306.7	1.000028
60500.0	73.3	-64.6		122.3	562.7	288.0	1.000027
61000.0	71.5	-64.0		119.1	563.4	247.2	1.000027
61500.0	69.7	-63.5		115.8	564.1	239.7	1.000026
62000.0	68.0	-62.8		112.7	565.0	242.6	1.000025
62500.0	66.4	-62.1		109.6	566.0	244.4	1.000024
63000.0	64.8	-61.4		106.6	566.9	244.7	1.000024

STATION ALTITUDE 3989.10 FEET MSL  
5 NOV. 62  
ASCENSION NO. 543

UPPER AIR DATA  
3090020543  
WHITE SANDS

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

TABLE 7 Cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION (TN) SPEED KNOTS	INDEX OF REFRACTION
63500.0	65.2	-60.7		103.7	567.8	244.8	1.000023
64000.0	61.7	-60.0		100.9	568.7	237.0	1.000022
64500.0	60.2	-59.3		98.1	569.7	218.0	1.000022
65000.0	58.8	-58.6		95.5	570.6	200.2	1.000021
65500.0	57.4	-58.4		93.1	570.9	195.1	1.000021
66000.0	56.0	-59.1		91.1	570.0	192.3	1.000020
66500.0	54.7	-59.4		89.1	569.6	200.3	1.000020
67000.0	53.4	-59.1		86.9	570.0	207.7	1.000019
67500.0	52.1	-58.8		84.7	570.4	211.0	1.000019
68000.0	50.9	-58.4		82.5	570.9	213.4	1.000018
68500.0	49.7	-58.3		80.5	571.0	211.8	1.000018
69000.0	48.5	-58.6		78.7	570.6	208.8	1.000018
69500.0	47.3	-58.9		77.0	570.2	208.0	1.000017
70000.0	46.2	-59.3		75.2	569.7	209.8	1.000017
70500.0	45.1	-58.5		73.2	570.8	214.2	1.000016
71000.0	44.0	-57.6		71.2	572.0	234.4	1.000016
71500.0	43.0	-56.7		69.2	573.2	252.0	1.000015
72000.0	42.0	-55.8		67.3	574.4	254.9	1.000015
72500.0	41.0	-54.8		65.4	575.6	254.5	1.000015
73000.0	40.0	-54.2		63.7	576.5	253.4	1.000014
73500.0	39.1	-54.2		62.2	576.5	251.0	1.000014
74000.0	38.2	-54.1		60.7	576.5	248.4	1.000014
74500.0	37.3	-54.1		59.3	576.6	246.7	1.000013
75000.0	36.4	-54.1		57.9	576.6	244.2	1.000013
75500.0	35.6	-54.1		56.6	576.6	237.6	1.000013
76000.0	34.8	-54.0		55.3	576.7	221.7	1.000012
76500.0	33.9	-54.0		54.0	576.7	193.9	1.000012
77000.0	33.2	-54.0		52.7	576.7	176.3	1.000012
77500.0	32.4	-54.0		51.5	576.8	157.5	1.000011
78000.0	31.6	-54.0		50.3	576.8	207.8	1.000011
78500.0	30.9	-53.9		49.1	576.8	247.6	1.000011
79000.0	30.2	-53.9		47.9	576.8	259.2	1.000011
79500.0	29.5	-53.6		46.8	577.3	262.0	1.000010
80000.0	28.8	-53.2		45.6	577.8	263.4	1.000010
80500.0	28.1	-52.7		44.5	578.4	254.0	1.000010
81000.0	27.5	-52.3		43.4	578.9	243.2	1.000010
81500.0	26.8	-51.9		42.3	579.5	237.3	1.000009
82000.0	26.2	-51.5		41.2	580.0	230.1	1.000009
82500.0	25.6	-51.1		40.2	580.6	224.1	1.000009
83000.0	25.0	-50.6		39.2	581.1	221.2	1.000009

STATION ALTITUDE 3989.00 FEET MSL  
5 NOV. 42 0830 HRS MST  
ASCENSION NO. 543

UPPER AIR DATA  
3000020543  
WHITE SANDS  
TABLE 7 Cont'd

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

GEODETIC ALTITUDE MSL FEET	PRESSURE HILLIBAK'S	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KIOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT				DIRECTION DEGREES (TN)	SPEED KNOTS	
83500.0	24.5	-50.2			30.2	581.7	218.7	17.2	1.000009
84000.0	23.9	-49.8			37.3	582.2	218.7	17.2	1.000008
84500.0	23.4	-49.6			36.4	582.5	222.6	16.4	1.000008
85000.0	22.8	-49.4			35.5	582.8	227.2	15.7	1.000008
85500.0	22.3	-49.1			34.7	583.1	235.1	15.3	1.000008
86000.0	21.8	-48.9			33.9	583.4	243.9	15.1	1.000008
86500.0	21.3	-48.7			33.1	583.7	250.9	14.7	1.000007
87000.0	20.8	-48.5			32.3	583.9	254.2	12.6	1.000007
87500.0	20.3	-48.3			31.5	584.2	258.6	10.7	1.000007
88000.0	19.9	-48.0			30.8	584.6	265.3	8.4	1.000007
88500.0	19.4	-47.5			30.0	585.2	276.4	6.2	1.000007
89000.0	19.0	-47.1			29.3	585.7	291.1	4.8	1.000007
89500.0	18.6	-46.7			28.6	586.3	280.6	5.9	1.000006
90000.0	18.1	-46.6			27.9	586.3	273.4	7.0	1.000006
90500.0	17.7	-46.7			27.3	586.3	266.4	8.7	1.000006
91000.0	17.3	-46.7			26.7	586.2	260.4	10.8	1.000006
91500.0	16.9	-46.8			26.1	586.2	256.4	13.1	1.000006
92000.0	16.6	-46.8			25.5	586.1	253.6	14.2	1.000006
92500.0	16.2	-46.8			24.9	586.1	251.7	14.7	1.000006
93000.0	15.8	-46.9			24.4	586.0	249.7	15.2	1.000005
93500.0	15.5	-46.6			23.8	586.3	249.2	15.3	1.000005
94000.0	15.1	-46.2			23.2	586.9	249.1	15.3	1.000005
94500.0	14.8	-45.8			22.7	587.4	248.9	15.2	1.000005
95000.0	14.5	-45.4			22.1	588.0	241.4	14.0	1.000005
95500.0	14.1	-45.0			21.6	588.5	232.0	13.0	1.000005
96000.0	13.8	-44.5			21.1	589.0	221.5	12.5	1.000005
96500.0	13.5	-44.1			20.6	589.6	214.9	13.0	1.000005
97000.0	13.2	-43.7			20.1	590.1	208.9	13.7	1.000004
97500.0	12.9	-43.3			19.6	590.7	206.6	14.5	1.000004
98000.0	12.6	-42.9			19.1	591.2	217.2	15.5	1.000004
98500.0	12.4	-42.4			18.7	591.7	226.1	17.0	1.000004
99000.0	12.1	-42.0			18.2	592.3	232.5	19.1	1.000004
99500.0	11.8	-41.6			17.6	592.8	235.3	21.8	1.000004
100000.0	11.6	-41.2			17.3	593.3	237.6	24.5	1.000004
100500.0	11.3	-40.5			16.9	594.2	239.4	26.8	1.000004
101000.0	11.1	-39.9			16.5	595.0	241.0	28.4	1.000004
101500.0	10.8	-39.2			16.1	595.9	242.4	30.0	1.000004
102000.0	10.6	-38.5			15.7	596.8	243.7	30.9	1.000003
102500.0	10.3	-37.8			15.3	597.7	245.0	31.2	1.000003
103000.0	10.1	-37.1			14.9	598.6	246.3	31.5	1.000003

STATION ALTITUDE 3989.00 FEET MSL  
 5 NOV. 82  
 ASCENSION 110. 543  
 0839 HRS, PST

UPPER AIR DATA  
 3090020543  
 WHITE SANDS  
 TABLE 7 Cont'd

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE HILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CURIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
103500.0	9.9	-36.6		14.6	599.2	247.3	32.5	1.000003
104000.0	9.7	-36.3		14.3	599.6	248.1	34.0	1.000003
104500.0	9.5	-36.0		13.9	600.0	248.9	35.6	1.000003
105000.0	9.3	-35.7		13.6	600.3	249.2	37.9	1.000003
105500.0	9.1	-35.4		13.3	600.7	249.4	40.7	1.000003
106000.0	8.9	-35.1		13.0	601.1	249.5	43.5	1.000003
106500.0	8.7	-34.8		12.7	601.5			1.000003
107000.0	8.5	-34.5		12.4	601.9			1.000003
107500.0	8.3	-34.2		12.1	602.2			1.000003
108000.0	8.2	-33.9		11.9	602.6			1.000003

STATION ALTITUDE 3989.00 FEET MSL  
5 NOV. 82  
ASCENSION NO. 543

MANDATORY LEVELS  
3090020543  
WHITE SANDS  
TABLE 3

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

PRESSURE CLOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	5093.	9.1	-6.7	32.	185.4	2.2
800.0	6739.	8.9	-11.5	22.	181.2	6.9
750.0	8495.	9.4	-16.7	14.	199.7	11.8
700.0	10358.	5.2	-10.5	16.	227.5	11.3
650.0	12329.	1.7	-20.0	18.	255.2	12.5
600.0	14433.	-1.7	-24.0	16.	279.2	18.2
550.0	16686.	-6.0	-27.3	17.	280.9	28.0
500.0	19113.	-10.5	-32.8	14.	263.1	21.0
450.0	21742.	-16.8	-34.8	19.	247.9	28.0
400.0	24508.	-25.1	-39.3	25.	249.9	33.8
350.0	27734.	-33.0	-39.1	54.	265.9	32.6
300.0	31229.	-40.1			276.4	42.1
250.0	35247.	-45.3			280.5	57.5
200.0	40054.	-53.6			285.1	60.2
175.0	42845.	-57.8			283.9	55.5
150.0	46007.	-61.3			289.4	45.3
125.0	49697.	-64.3			284.1	37.3
100.0	54119.	-69.6			274.4	22.1
80.0	58534.	-65.8			302.9	6.1
70.0	61206.	-63.6			240.9	9.1
60.0	64343.	-59.2			210.0	7.4
50.0	68098.	-58.2			213.0	10.2
40.0	72725.	-54.2			253.5	16.1
30.0	78782.	-53.9			259.8	6.6
25.0	82652.	-50.6			221.3	16.9
20.0	87455.	-48.1			262.7	9.3
15.0	93710.	-46.1			249.0	15.3
10.0	102718.	-36.7			240.9	31.6

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 1940.00 FEET MSL  
5 NOV. 62 0930 HRS MST  
ASCENSION NO. 51

SIGNIFICANT LEVEL DATA  
3090040051  
STALLION

GEODETIC COORDINATES  
33-01920 LAT DEG  
106-00501 LON DEG

TABLE 9

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT
	AIR DEGREES	DEWPOINT CENTIGRADE	
855.0	11.0	-6.8	28.0
850.0	10.5	-6.8	29.0
809.8	7.2	-8.4	32.0
780.2	7.2	-14.2	20.0
770.4	8.9	-12.8	20.0
700.0	5.0	-14.4	23.0
624.4	-1.6	-15.0	35.0
599.4	-4.2	-15.7	40.0
535.6	-6	-15.2	32.0
500.0	-12.0	-25.3	32.0
470.0	-15.1	-29.1	29.0
429.1	-20.6	-35.8	24.0
400.0	-25.0	-33.7	44.0
390.4	-26.3	-33.6	50.0
384.2	-27.4	-31.9	65.0
348.4	-33.3	-38.5	59.0
323.9	-38.1	-44.2	52.0
303.6	-41.9		
300.0	-42.6		

STATION ALTITUDE 4940.00 FEET MSL  
5 NOV. 62 0930 HRS MST  
ASCENSION NO. 51

UPPER AIR DATA  
3000040051  
STALLION  
TABLE 10

GEODETTIC COORDINATES  
33.81920 LAT DEG  
106.66501 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CURIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
4940.0	855.0	11.0	-6.8	28.0	1046.5	657.2	0.0	0.0	1.000250
5000.0	853.1	10.8	-6.8	28.4	1044.9	657.0	217.6	0.3	1.000250
5500.0	837.6	9.5	-7.2	29.9	1030.7	655.5	217.6	2.6	1.000246
6000.0	822.3	8.2	-7.8	31.1	1016.4	654.0	217.6	4.9	1.000243
6500.0	807.3	7.2	-8.8	31.0	1001.7	652.8	217.6	7.2	1.000238
7000.0	792.5	7.2	-11.5	25.0	983.6	652.7	220.0	9.5	1.000231
7500.0	778.0	7.6	-13.9	20.0	964.4	653.1	225.6	11.6	1.000225
8000.0	763.7	8.5	-12.9	20.3	943.4	654.2	230.0	13.4	1.000221
8500.0	749.7	7.8	-13.2	20.9	928.6	653.5	235.5	13.8	1.000217
9000.0	735.9	7.0	-13.5	21.4	914.0	652.5	239.8	14.1	1.000214
9500.0	722.4	6.3	-13.8	22.0	899.6	651.6	242.5	14.1	1.000211
10000.0	709.1	5.5	-14.1	22.6	885.5	650.7	243.1	13.2	1.000207
10500.0	696.0	4.7	-14.3	23.6	871.8	649.7	241.6	11.6	1.000204
11000.0	683.0	3.6	-14.3	25.6	856.9	648.4	241.2	11.6	1.000201
11500.0	670.3	2.5	-14.3	27.6	846.1	647.2	241.2	12.0	1.000199
12000.0	657.7	1.4	-14.4	29.5	833.6	645.9	243.6	13.5	1.000196
12500.0	645.4	0.3	-14.6	31.5	821.3	644.6	245.3	15.0	1.000193
13000.0	633.3	-0.8	-14.8	33.5	809.1	643.3	243.7	15.0	1.000190
13500.0	621.4	-1.9	-15.1	35.6	797.2	642.0	242.2	15.0	1.000187
14000.0	609.6	-3.1	-15.4	37.9	785.6	640.5	242.9	15.1	1.000185
14500.0	598.0	-4.1	-15.7	39.8	773.5	639.3	244.2	15.2	1.000182
15000.0	586.7	-3.5	-15.6	38.5	757.1	640.1	253.7	16.0	1.000178
15500.0	575.6	-2.9	-15.5	37.1	741.0	640.8	262.0	17.3	1.000175
16000.0	564.6	-2.3	-15.4	35.8	725.3	641.6	267.5	19.3	1.000171
16500.0	553.9	-1.7	-15.3	34.4	709.9	642.3	271.3	21.4	1.000168
17000.0	543.4	-1.1	-15.2	33.0	694.9	643.0	271.5	23.1	1.000164
17500.0	533.1	-1.4	-15.9	32.0	682.5	642.6	270.8	24.4	1.000161
18000.0	522.8	-4.6	-19.7	32.0	677.5	638.7	268.2	24.6	1.000158
18500.0	512.7	-7.8	-21.6	32.0	672.7	634.8	263.5	24.9	1.000156
19000.0	502.9	-11.0	-24.4	32.0	666.0	630.9	256.1	25.4	1.000153
19500.0	493.0	-12.7	-26.1	31.3	659.1	628.9	251.2	26.3	1.000151
20000.0	483.2	-13.7	-27.4	30.3	648.6	627.7	248.7	27.3	1.000148
20500.0	473.7	-14.7	-28.6	29.4	636.2	626.4	248.5	28.0	1.000145
21000.0	464.2	-15.8	-30.0	28.3	628.3	625.0	251.1	28.3	1.000143
21500.0	454.9	-17.1	-31.5	27.2	618.6	623.5	253.9	28.9	1.000140
22000.0	445.7	-18.3	-33.0	26.1	609.1	622.0	256.9	30.0	1.000138
22500.0	436.8	-19.5	-34.5	25.0	599.8	620.5	259.8	31.0	1.000135
23000.0	428.0	-20.8	-35.6	24.8	590.6	619.0	262.6	32.0	1.000133
23500.0	419.2	-22.1	-36.6	30.7	581.4	617.4	263.9	32.4	1.000131
24000.0	410.6	-23.4	-38.0	36.6	572.4	615.8	264.7	32.6	1.000130

STATION ALTITUDE 4940.00 FEET MSL  
5 NOV. 62 0930 HRS MST  
ASCENSION NO. 51

UPPER AIR DATA  
3090040051  
STATION

GEODETIC COORDINATES  
33.81920 LAT DEG  
106.66501 LON DEG

TABLE 10 Cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION (TN) SPEED KNOTS	INDEX OF REFRACTION
24500.0	402.2	-24.7	42.5	563.6	614.2	263.8	1.000128
25000.0	393.8	-25.8	47.8	554.6	612.8	262.6	1.000126
25500.0	385.7	-27.1	61.5	545.9	611.2	260.9	1.000124
26000.0	377.5	-28.5	63.9	537.3	609.5	259.2	1.000122
26500.0	369.5	-29.7	62.6	528.7	607.9	257.1	1.000120
27000.0	361.7	-31.0	61.3	520.3	606.3	255.1	1.000118
27500.0	354.1	-32.3	60.0	512.1	604.6	253.4	1.000116
28000.0	346.6	-33.6	58.5	504.0	603.0	251.7	1.000114
28500.0	339.1	-35.1	56.4	496.1	601.2	250.3	1.000112
29000.0	331.8	-36.5	54.3	488.3	599.3	248.9	1.000110
29500.0	324.6	-38.0	52.2	480.7	597.5	248.7	1.000108
30000.0	317.5	-39.3	35.9**	472.8	595.8		1.000106
30500.0	310.5	-40.6	18.0**	465.1	594.1		1.000104
31000.0	303.6	-41.9	.1**	457.4	592.4		1.000102

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.



STATION ALTITUDE 4940.00 FEET MSL  
5 NOV. 82  
ASCENSION NO. 51

MANDATORY LEVELS  
3090040051  
STALLION  
TABLE 11

GEODETIC COORDINATES  
33.81920 LAT DEG  
106.66501 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	5097.	10.5	-6.8	29.	217.6	.7
800.0	6741.	7.2	-10.0	28.	217.6	8.4
750.0	8485.	7.8	-13.2	21.	235.4	13.8
700.0	10341.	5.0	-14.4	23.	242.1	12.1
650.0	12309.	.7	-14.5	31.	244.8	14.5
600.0	14400.	-4.1	-15.7	40.	243.5	15.2
550.0	16663.	-1.4	-15.3	34.	271.4	22.0
500.0	19123.	-12.0	-25.3	32.	254.1	25.7
450.0	21740.	-17.7	-32.3	27.	255.5	29.5
400.0	24592.	-25.0	-33.7	44.	263.5	32.8
350.0	27726.	-33.0	-38.2	59.	252.5	34.4
300.0	31211.	-42.6				

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DT